2006 Patents

Systems and Methods for Improved Telepresence

This invention, credited to Matthew Anderson, David Willis and Robert Kinoshita, provides a modular, flexible system for deploying multiple video perception technologies. The telepresence system of the invention is capable of allowing an operator to control multiple mono and stereo video inputs in a hands-free manner. The raw data generated by the input devices is processed into a common zone structure that corresponds to the commands of the user, and the commands represented by the zone structure are transmitted to the appropriate device.
Patent Number: 6,958,746 Date Issued: 25 October 2005

Tensiometer Methods

Blair Grover, James Sisson, Joel Hubbell and William Casper were named as the inventors of this technology which is a method and apparatus for evaluation of subsurface moisture content. The tensiometer has a stainless steel casing and facilitates subsurface testing in both contaminated and non-contaminated areas, while substantially avoiding the shortcomings of prior devices.
Patent Number: 6,976,386 Date Issued: 20 December 2005

In-Situ Containment and Extraction of Volatile Soil Containments

Soil contamination has become a major problem in the developed. Chemicals from farms, underground storage units, industrial complexes and even residential areas are being released into the environment, contaminating surrounding soil, and threatening local supplies. Due to the sole efforts of Mark Varvel, an innovative technology was developed that relates to containing and removing toxic waste from a subsurface environment. This technology will allow for a low cost, self-sufficient, soil cleaning system that can be easily installed and operated in remote areas.
Patent Number: 6,979,150 Date Issued: 27 December 2005

Method for Destroying Halocarbon Compositions Using A Critical Solvent

Since the 1970s there have been unresolved controversies over potential ecological and health hazards of halocarbon solvents. Daniel Ginosar, Robert Fox and Stuart Janikowski developed a method to break down halocarbons. This method provides greater energy efficiency over existing methods by increasing reaction rates and improved versatility.
Patent Number: 6,984,768 Date Issued: 10 January 2006

Cloning and Expression of Recombinant Adhesive Protein MEFP-1 of the Blue Mussel, Mytilus Edulis

INL inventors, Francisco Roberto and Heather Silverman, were named on two patents for their discovery of cloning blue mussels and using them as an adhesive. Adhesives derived from this discovery can be used in a variety of fields, including but not limited to: military applications, construction products, plastics, electronics, automobile and aviation products as well as several biomedical fields.
Patent Number: 6,987,170 Date Issued: 17 January 2006
Patent Number: 6,995,012 Date Issued: 7 February 2006

Exfiltrometer Apparatus and Method for Measuring Unsaturated Hydrologic Properties in Soil

This invention developed by Annette Schafer, James Sisson, and Joel Hubbell provides an apparatus and method for measuring unsaturated hydrologic properties in soil and allows for rapid determination of soil hydraulic properties.
Patent Number: 6,986,281 Date Issued: 17 January 2006

Rapid Classification of Biological Components

In the past decade, DNA-based analysis techniques have rapidly gained acceptance in forensic and paternity analyses for matching biological samples of an individual, but both have inherent deficiencies. Due to the collaborative efforts of Diane Key, Karen Barrett and Vicki Thompson, a new method has been developed which eliminates these deficiencies while at the same time rapidly classifying biological components.
Patent Number: 6,989,276 Date Issued: 24 January 2006

Operating an Induction Melter Apparatus

An innovative technology developed by Brian Raivo, Jay Roach, John Richardson and Nicholas Soelberg, provides a simplified assembly that allows complete drainage of an induction melter, with easy transition to a remote environment. The design incorporates high temperature ceramic heating with intermittent induction heating. With a rapid heating, cool down and drain tube the melter decreases down time and reduces operational costs.
Patent Number: 6,993,061 Date Issued: 31 January 2006

Selective Destruction of Cells Infected with Human Immunodeficiency Virus

A patent credited to Thomas Ward and William Keener provides an antiviral agent for treating retroviral infections, including HIV infections, by destroying cells infected by viruses. The antiviral agent is toxic to virus-infected cells but is non-toxic to uninfected cells.

Patent Number: 7,018,633 Date Issued: 28 March 2006

Encapsulation Method for Maintaining Biodecontamination Activity

In the nuclear industry, concrete is commonly used to retain radioactive substances. Nuclear facilities use concrete ponds, canals, sumps, and other structures for the containment, transport, and storage of liquid and solid radioactive materials, resulting in the contamination of the concrete surfaces with radionuclides. Due to the efforts of Lee Nelson, Melinda Hamilton and Robert Rogers this new method will provide a practical, cost effective, and environmentally acceptable method for decontaminating concrete.

Patent Number: 7,026,146 Date Issued: 11 April 2006

Analytical Instruments, Ionization Sources, and Ionization Methods

Since the terrorist attacks of 9/11, there has been a substantial increase in the importance of protecting the nation's airport security. Paul Mottishaw and David Atkinson teamed up to improve a technology which detects explosives and other contrabands in airports. This technology uses a rugged, efficient, non-radioactive method and apparatus for vaporizing and ionizing sample particulates. It does not rely on thermal desportion/vaporization prior to the introduction of analyze ions to the detector and is inexpensive and robust.

Patent Number: 7,026,611 Date Issued: 11 April 2006

Feedback Enhanced Plasma Spray Tool

An improved automatic feedback control scheme was developed by INL inventors David Swank, Delon Haggard and Randy Bewley. This tool enhances plasma spraying of powdered material through the reduction of process variability and provides better ability to engineer coating structure.

Patent Number: 6,967,304 Date Issued: 22 November 2005

Subsurface Materials Management and Containment System, Components Thereof and Methods Relating Thereto AND *Apparatus for Indication of at Least One Subsurface Barrier Characteristic*

Some experts estimate that landfills in the United States alone hold more than three million cubic meters of buried waste. Reva Nickelson, John Richardson, Kevin Kostelnik and Paul Sloan collaborated on developing two technologies related to the improvement of conventional containment barriers. The first patent improves containment systems and methods for installing in situ containment systems. It is capable of containing, collecting and/or processing effluent which would otherwise escape from a zone of interest. The second patent improves the methods, apparatus and systems used for monitoring the integrity of a waste containment structure.
Patent Number: 7,029,203 Date Issued: 18 April 2006
Patent Number: 7,056,063 Date Issued: 6 June 2006

MicroTunneling Systems and Methods of Use

Containment, management, and disposal of various types of waste, such as chemical, nuclear, and other potentially harmful types of waste are recognized, long-standing problems. Because water is used for human consumption and for agriculture, contamination of groundwater by leaching is a major concern. INL inventors, John Richardson, Kevin Kostelnik, Paul Sloan and Reva Nickelson, have developed an improved method, apparatus and system for disposing casing sections within boreholes via a tunneling system which may form barriers for waste management.
Patent Number: 7,070,359 Date Issued: 4 July 2006

Induction Heating Apparatus and Methods for Selectively Energizing an Inductor in Response to a Measured Electrical Characteristic that is at Least Partially a Function of a temperature of Material Being Heated

Induction heating apparatuses have been employed for heating a variety of materials without direct contact. For instance, heat treating of metals and melting of materials may be accomplished by induction heating. Grant Hawkes, John Richardson and John Morrison are credited for an improved apparatus and method for induction heating without the limitations of conventional methods.
Patent Number: 7,072,378 Date Issued: 4 July 2006

Induction Heating Apparatus and Methods of Operation Thereof

Although induction heating apparatuses have been employed for heating a variety of materials in a crucible without direct contact, conventional induction heating apparatuses have suffered from a number of shortcomings including the inability to precisely control the temperature of the material being melted in the crucible while further maintaining the temperature of the crucible. Inventor John Richardson developed a method of operation for an induction heating apparatus that allows the walls of the crucible to be cooled and at least one material to be precisely heated within the crucible by selecting a desired electromagnetic flux skin depth for the material being heated and selecting and adjusting an alternating current frequency for producing a tailored electromagnetic flux skin depth of the material.
Patent Number: 7,085,305 Date Issued: 1 August 2006

Well Having Inhibited Microbial Growth

Brady Lee and Kirk Dooley collaborated on a method of inhibiting microbial growth in a well. The presence of microbial growth can cause bio-fouling and plugging of wells. Treatment of the well to eliminate microbial growth and remove plugging is often difficult and ineffective. This new method provides well constructions and preventative treatment methods that minimize unwanted growth.
Patent Number: 7,090,016 Date Issued: 15 August 2006

System Configured for Applying Multiple Modifying Agents to a Substrate

A method and apparatus for modifying of substrates with multiple modifying agents in a single continuous system was developed by Charles Allen, Daniel Ginosar, David Miller, Mark Argyle, Robert Fox, Stuart Janikowski, Alan Propp and William Toth. The system comprises of a first processing chamber configured for applying a first modifying agent to a substrate and a second processing chamber configured for applying a second modifying agent to the same substrate.
Patent Number: 6,962,731 Date Issued: 8 November 2005

Method and Apparatus for Two Dimensional Surface Property Analysis Based on Boundary Measurement

John Richardson was named as the sole inventor on a method and apparatus for determining physical properties of a conductive film. This technology always electrical resistance to be measured and a profile of the conductive film may be developed by determining resistivity at a plurality of locations. It may also be applied to a structure such that the resistivity may be estimated and profiled for the structure's surface.
Patent Number: 6,965,836 Date Issued: 15 November 2005

Real-Time Data Acquisition and Telemetry Based Irrigation Control System

Designed by John Slater and John Svoboda, this control system is used to facilitate real time management of an agricultural irrigation system. The control module sends corresponding control signals to nozzles of the irrigation system causing the irrigation system to disperse water in a manner consistent with the moisture content data transmitted by the probes to the reader. Because the irrigation system moves continuously through the field to be irrigated, the moisture content data acquisition and resultant water dispersal by the irrigation system occur substantially in real time.
Patent Number: 6,975,245 Date Issued: 13 December 2005

Finned Tube with Vortex Generators for a Heat Exchanger

Manohar Sohal and James O'Brien collaborated on a system for and method of manufacturing a finned tube for a heat exchanger. The tube has a wall with a continuous cross-sectional shape, an internal surface and external surface with at least one pair of vortex generators. Depending on the shape of the winglets and the position of the winglets on the fins, heat transfer performance can be significantly improved with a minimal increase in pressure drop along the finned tube.
Patent Number: 6,976,301 Date Issued: 20 December 2005

Cured Composite Materials for Reactive Metal Battery Electrolytes

A battery typically comprises one or more electrochemical cells connected in series, parallel, or both, depending on desired output voltage and capacity. This invention, credited to Eric Peterson, Frederick Stewart and Mason Harrup, relates to a new molecular composite material for use in all-solid-construction reactive metal batteries. The materials are primarily designed for use in either reserve or primary reactive metal/water batteries.
Patent Number: 7,008,564 Date Issued: 7 March 2006

Structures Including Network and Topology for Identifying, Locating and Quantifying Physical Phenomena

John Richardson, Karen Moore and Robert Carrington developed a method and system to detect, locate and quantify leaks, strain and other physical changes within a structure that is inexpensive, robust and may be implemented in numerous applications and with varying structures. This technology also has the ability to track potential failures of a structure for purposes of preventative maintenance.
Patent Number: 7,032,459 Date Issued: 25 April 2006

Optical Steam Quality Measurement System and Method

James Davidson and Judy Partin improved a current system and method of measuring the quality, or wetness, of steam. Historically, calorimeters have been used to measure steam quality, but difficulties with sensitivity, accuracy and range limit their suitability for use in many applications. One major benefit to this innovative optical system is that it is sensitive to even a slight variation in steam quality during real time monitoring while at the same time being compact and noninvasive.
Patent Number: 7,034,302 Date Issued: 25 April 2006

Ultra High Frequency Imaging Acoustic Microscope

Vance Deason and Kenneth Telschow collaborated on improving methods and apparatuses for inspecting and/or characterizing materials. This invention will allow for full-field, real-time imaging developed on the foundational principles of acoustic microscopy.
Patent Number: 7,050,174 Date Issued: 23 May 2006

Method for Photon Activation Positron Annihilation

Douglas Akers was the sole inventor on a technology relating to non-destructive testing of materials using positron annihilation. One benefit of using positron annihilation is that it is theoretically capable of detecting fatigue damage in metals at its early stages. This improved method replaces the external positron source with an external neutron source which allows neutrons to trigger or induce the production of positrons.
Patent Number: 7,058,153 Date Issued: 6 June 2006

A Method for Protecting a Surface

Steel is a metallic alloy which can have exceptional strength characteristics and can be utilized in the skeletal supports of building structures, tools, engines components, and protective shielding of modern armaments. Sole inventor, Daniel Branagan, has developed a method for forming nanocrystalline grain size steel materials that when processed will increase the hardness without a corresponding loss of toughness.
Patent Number: 7,067,022 Date Issued: 27 June 2006

Phosphazene Membranes for Gas Separations

In recent years, separation membranes have been used in many applications, including producing potable water from sea water by reverse osmosis, cleaning industrial effluents, recovering valuable constituents for solutions by electrolysis, and affecting various medical purposes. Membranes have also been used to separate, remove, purify, or partially recover individual components of gas mixtures, such as mixtures of hydrogen, helium, oxygen, nitrogen and argon. In order to selectively separate a desired gas from the gas mixture, the separation membrane must be capable of withstanding the conditions to which it is exposed during the separation. Christopher Orme, Frederick Stewart, Mason Harrup and Thomas Luther developed a membrane material that provides a high selectivity for a desired gaseous component while maintaining a high permeability for the desired component.
Patent Number: 7,074,256 Date Issued: 11 July 2006

Electrochemical Impedance Spectroscopy System and Methods for Determining Spatial Locations of Defects

Concrete is a widely used construction material. As with all construction materials, improved quality is desired for the performance of a finished structure. Conventional quality control techniques do not directly measure the individual physical or chemical components that affect the material. Anne Glenn, David Glenn, Gretchen Matthern, Peter Shaw and Alan Propp are credited for developing a non-invasive system and method for determining spatial locations of defects in a material that may overcome the time and expense involved with measuring such materials.
Patent Number: 7,088,115 Date Issued: 8 August 2006

Welding Apparatus and Methods for Using Ultrasonic Sensing

Eric Larsen, Herschel Smartt, John Johnson and Timothy McJunkin created a welding apparatus using ultrasonic sensing that includes an adjustable welding head for forming a partially completed weld in a weld seam. This new method and apparatus facilitates accurate tracking of weld seams during the welding process and substantially avoids the shortcomings of prior welding devices.
Patent Number: 7,094,989 Date Issued: 22 August 2006

Digital Data Storage Systems, Computers, and Data Verification Methods

Developed by Bennett Groeneveld, Wayne Austad, Stuart Walsh and Catherine Herring this technology provides a computer with an interface adapted to couple with a dynamic database. The database processes circuitry configured to provide a first signature from digital data stored within a portion of the dynamic database at an initial moment in time, and compares the first signature to a second signature which is also stored into the database.
Patent Number: 6,981,151 Date Issued: 27 December 2005

Mass Spectrometer and Methods of Increasing Dispersion Between Ion Beams

Mass spectrometers are used for wide ranging applications, such as isotope radio monitoring, chemical analysis, and tracing of metals and biological materials. Anthony Appelhans, James Delmore and John Olson designed a new method of increasing dispersion between ion beams. This method produces an extremely wide dispersion between adjacent masses and makes it possible to measure multiple masses simultaneously in order to achieve high absolute sensitivity and high abundance sensitivity.
Patent Number: 6,984,821 Date Issued: 10 January 2006

Method and Apparatus for Detecting Concealed Weapons

Due to the collaborative efforts of Dale Kotter and Frederick Fluck, a patent was issued for an apparatus and method which detects concealed weapons. Many different kinds of concealed weapons detection systems exist today in a wide range of situations in order to provide added security against violent crimes and terrorist attacks but this INL invention more accurately and reliably distinguishes between a threat item, such as a gun or a knife, and a non-threat item, such as a belt buckle or a steel shank in a shoe.
Patent Number: 7,013,245 Date Issued: 14 March 2006

Electrostatic Shape-Shifting Ion Optics

A large majority of ion traps use hyperbolically-shaped electrodes to produce or generate quadruple electric fields that are suitable for confining ions. This INL invention, developed by David Dahl, Jill Scott and Anthony Appelhans, confines and guides ions suitable for use in high-vacuum environments.
Patent Number: 7,038,216 Date Issued: 2 May 2006

Knowledge Information Management Toolkit and Method

Businesses worldwide store information in databases, including Fortune 500 companies, as well as small and mid-size enterprises. Antoinette Hempstead and Kenneth Brown are credited for developing a knowledge based toolkit for a distributed data system that allows for modification of knowledge pieces used by businesses through out the world.

Patent Number: 7,092,958 Date Issued: 15 August 2006

Method and Apparatus for Suppressing Waves in a Borehole

Phillip West was named as the sole inventor on the method and apparatus for suppressing waves in a borehole. The invention relates to seismic surveying of geological formations as conducted, by way of example only, in oil and gas exploration. This technology will significantly reduce or eliminate interference experienced by sensors disposed in a borehole for collecting data in the form of energy waves.

Patent Number: 6,951,262 Date Issued: 4 October 2005

Methods for Delivering Liquefied Gas to an Engine

Dennis Bingham, Bruce Wilding, James O'Brien, Ali Siahpush and Kevin Brown collaborated on creating a method for delivering liquefied gas from a holding tank to an engine. The liquefied gas delivery system includes an insulated holding tank configured to receive a liquefied gas at saturated liquid/gas conditions.

Patent Number: 6,953,028 Date Issued: 11 October 2005

Apparatus for the Liquefaction of Natural Gas and Methods Relating to the Same

The collaborative efforts of Bruce Wilding, Dennis Bingham, Gary Palmer, John Vranicar, Kerry Klingler, Kevin Raterman, Michael McKellar and Terry Turner resulted in an apparatus and method for producing liquefied natural gas. This technology provides a method for removing carbon dioxide from a mass of natural gas and includes cooling at least a portion of the mass of natural gas to form a slurry which comprises at least liquid natural gas and solid carbon dioxide.

Patent Number: 6,962,061 Date Issued: 8 November 2005

Methods and Apparatus of Suppressing Tube Waves within a Bore Hole and Seismic Surveying Systems Incorporating Same

An apparatus and method for the attenuation of tube waves was developed by Phillip West and Daryl Haefner. The apparatus includes a bladder formed of a soft, compliant material, a pressure vessel configured to store a volume of pressurized gas and a regulating system. The method of this invention includes disposing a bladder within the volume of fluid and coupling a chamber with the bladder such that an upper end of the chamber is in fluid communication with the bladder.
Patent Number: 6,973,993 Date Issued: 13 December 2005

Fluid Pumping Apparatus

Historically, there has been a need for coupling sensors such as geophones to a borehole wall that overcomes the structural and durability problems associated with convention borehole approaches and is suitable for use in the extreme pressure and temperature conditions of a deep well borehole. Inventor, Phillip West, developed a new fluid pump which can monitor seismic waves within a fluid filled borehole.
Patent Number: 6,986,650 Date Issued: 17 January 2006

Method and Apparatus for Identifying, Locating and Quantifying Physical Phenomena and Structure Including Same

Electrical techniques to detect, locate, and quantify resistance to a change in segmented conductive traces or an element was developed by John Richardson. The technique determines the number of traces for a specific spatial resolution, the algorithm to locate and quantifies resistance changes due to deformations.
Patent Number: 6,988,415 Date Issued: 24 January 2006

Pipelines Including Network and Topology for Identifying, Locating and Quantifying Physical Phenomena

Due to the collaborative efforts of John Richardson, Karen Moore and Robert Carrington, an innovative method and system for detecting, locating and quantifying physical phenomenon such as leaks, strains or deformations in a structure was developed at INL. This system and method is inexpensive, robust and can be implemented in numerous applications and with varying structures.
Patent Number: 6,997,062 Date Issued: 14 February 2006

Method of Liquefying a Gas

Bruce Wilding, Dennis Bingham, Kerry Klingler, Michael McKellar and Thor Zollinger are credited for developing a method which generates hydrogen gas at a high pressure and then later cools the high pressure hydrogen gas to liquefy it.
Patent Number: 6,997,012 Date Issued: 14 February 2006

Method for Direct Conversion of Gaseous Hydrocarbons to Liquids

Paul Lessing and Peter Kong were named on a patent that relates to techniques for conversion of hydrocarbons from a gaseous form to a liquid form. The reactor can be modified to allow use of a light source for directing ultraviolet light into the discharge plasma cell and the electrochemical cell.
This technique provides improved methods for converting a gas to a liquid and overcomes the difficulties and problems of prior systems.
Patent Number: 7,008,970 Date Issued: 7 March 2006

Method, Apparatus and System for Detecting Seismic Waves in a Borehole

Phillip West and Roger Sumstine were named on a patent which detects seismic wave. One benefit of this invention is that it allows for accurate and effective detection of acoustic waves in a downhole environment and eliminates the need for mechanical coupling.
Patent Number: 7,012,852 Date Issued: 14 March 2006

Methods and Systems for Low Frequency Seismic and Infrasound Detection of Geo-pressure Transition Zones

In the drilling of petroleum and other deep wells, one of the difficulties is detecting when a drilling operation may be approaching or entering zones of increasing pressure. Unexpected entry into such over pressured zones can result in well blow-out, loss of equipment, injury and loss of life, and the release of oil and other fluids into the surface environment. Michael Shook developed a reliable technique of sensing the location of a gradational pressurized zone that locates deposits of natural gas and petroleum based on seismic analysis. The method and system will allow for seismic-while-drilling measurement and prediction of gradational pressurized zones to prevent inadvertent drilling and subsequent possible blow out.
Patent Number: 7,079,449 Date Issued: 18 July 2006

Method of Producing a High Pressure Gas

Dennis Bingham, Kerry Klingler and Thor Zollinger collaborated on the development of a method for producing a high pressure gas, such as hydrogen, which includes supplying a chemical hydride that reacts with a liquid which has been previously under pressure.
Patent Number: 7,078,012 Date Issued: 18 July 2006

Gas Flow Meter and Method for Measuring Gas Flow Rate

Eric Robertson was the sole inventor on a method for measuring the flow rate of a gas. A gas flow meter was developed in which the time required to pressurize a chamber with a gas is used to determine the flow rate. This innovative method does not require separate calibration for each gas or gas mixture.
Patent Number: 7,082,826 Date Issued: 1 August 2006

Fast Quench Reactor for Hydrogen and Elemental Carbon Production from Natural Gas and Other Hydrocarbons

Methane and other light hydrocarbon combustibles are often found in remote areas. Brent Detering and Peter Kong are credited for their efforts on developing a method that converts a predominantly natural gas or other light hydrocarbon stream to diatomic hydrogen and elemental carbon with minor amounts of impurities. The benefits of this invention include energy efficiency and economically versatile scalability to a variety of production rates.
Patent Number: 7,097,675 Date Issued: 29 August 2006

Method of Fabricating Cermet Materials and Method of Utilizing Same

Emissions from vehicles, such as heavy-duty diesel engine vehicles, contribute greatly to pollution problems of the United States of America (USA). These emissions can cause adverse health effects such as premature mortality, aggravation of respiratory and cardiovascular disease, chronic bronchitis, changes to lung tissues and structures, and altered respiratory defense mechanisms, among other things. Peter Kong was the sole inventor on the development of a stronger and tougher porous intermetallic-ceramic composite filter that will reduce undesirable gaseous pollutants.
Patent Number: 7,022,647 Date Issued: 4 April 2006

Apparatus and Methods for Direct Conversion of Gaseous Hydrocarbons to Liquids

Methane is an abundant hydrocarbon fuel and chemical feed stock. Yet, because of capital and technological barriers, methane has remained an under-utilized resource throughout the world. Through the collaborative efforts of Paul Lessing and Peter Kong an improved apparatus and method for converting gas to liquid has been developed which will avoid or overcome the difficulties and problems of prior techniques.
Patent Number: 7,033,551 Date Issued: 25 April 2006

Systems for Delivering Liquefied Gas to an Engine

The increasing output of automobile emissions and the decreasing supply of oil reserves have motivated the search for alternative motor vehicle fuels. Ali Siahpush, Bruce Wilding, Dennis Bingham, James O'Brien and Kevin Brown have developed an improved system and method for delivering liquefied gas from a holding tank to an engine.
Patent Number: 7,044,113 Date Issued: 16 May 2006

Methods and Apparatus for Detecting Seismic Waves in a Borehole

Seismic surveying is used to examine subterranean geological formations for the potential presence of reserves of hydrocarbons such as petroleum, natural gas and other combinations. James Fincke, Phillip West and Ted Reed teamed up to develop a robust, uncomplicated method and apparatus that will improve the interface between seismic waves and sensor modules within a borehole to provide high-resolution seismic survey data.

Patent Number: 7,048,089 Date Issued: 16 May 2006

Process for Recovery of Daughter Isotopes from a Source Material

This patent, credited to Troy Tranter, Terry Todd, Leroy Lewis and Joseph Henscheid, encompasses a method of separating isotopes from a mixture as well as a method of producing an actinium-225/bismuth-213 product from a thorium source material.
Patent Number: 6,951,634 Date Issued: 4 October 2005

Method and Apparatus for the Detection of Neutrons and Gamma Rays

The collaboration of Edward Reber, Rahmat Aryaeinejad and David Spencer resulted in a handheld device that measures fast neutrons and gamma rays using a small single detector. The detection system can be made small and light and makes it possible to be used in several applications such as customs inspection, border security and environmental radiation monitoring.
Patent Number: 6,953,937 Date Issued: 11 October 2005

Methods and Computer Readable Medium for Improved Radio Therapy Dosimetry Planning

Daniel Wessol, David Nigg, Floyd Wheeler and Michael Frandsen were credited for developing an improved method for analytically computing dosimetry plans for use in radiotherapy planning. The basic idea of this method is to solve the fixed-source form of a transport equation by randomly selecting particles from a specified source that may be either internal or external to the body and tracking each selected particle through the geometric representation until it is either captured by a material of the geometric representation, scattered or is exited therefrom.
Patent Number: 6,965,847 Date Issued: 15 November 2005

System and Method for Automatically Scramming a Nuclear Reactor

An automatic scramming nuclear system is credited to Abderrafi Ougouag, Richard Schultz and William Terry. A cooling system operatively associated with the core provides coolant to the coolant inlet end and removes heated coolant from the coolant outlet end, which maintains a pressure differential during a normal operating condition of the nuclear reactor system. A control element is positioned within a guide tube and is movable between the upper and lower positions and automatically falls under the action gravity to the lower position when the pressure differential drops below a safe pressure differential.
Patent Number: 6,980,619 Date Issued: 27 December 2005

Scissor Thrust Valve Actuator

A commonly found safety-related component in government facilities, commercial nuclear power plants, and Navy power plants is a motor-operated or actuated valve. Such valves perform a wide range of safety related functions, for example, containment isolation to controlling high-pressure coolant injection, as these are particularly well understood in the nuclear power area. John Watkins, Kevin DeWall and Michael Nitzel have designed a scissor thrust valve actuator that reduces the amount of output required by a motor in giving the necessary torque and thrust to open and close linear valves.
Patent Number: 7,097,148 Date Issued: 29 August 2006

Ultrasonic Pulser-Receiver

Ultrasonic testing equipment is used in a variety of applications such as: measuring flow, determining flaws, measuring thickness, and gauging corrosion. This equipment is used with a variety of materials such as metals, plastics, glass, and chemicals. One particular type of ultrasonic testing apparatus is a pulser-receiver. Pulser-receivers are used for a variety of non-destructive testing applications, including flaw detection and thickness gauging. Steven Taylor was the sole inventor on a lower cost pulser-receiver that can be removed and replaced allowing for the system to be aligned and calibrated more quickly.
Patent Number: 7,104,131 Date Issued: 12 September 2006